

## AMENDMENTS TO THE CLAIMS

### **Claims 1-14 (Cancelled)**

**Claim 15 (New)** A propulsion device for use with an oxidizer and liquid fuel for propulsion, said propulsion device comprising:

- a combustion chamber;
- a surface area increasing device disposed inside said combustion chamber;
- a preheating device operable to preheat said surface area increasing device;
- a liquid fuel supply device operable to supply the liquid fuel to the inside of said combustion chamber so as to collide with said surface area increasing device;

- an oxidizer supply device operable to supply the oxidizer to the inside of said combustion chamber (i) so as to create an oxidation atmosphere inside said combustion chamber, and (ii) so that the oxidizer collides with said surface area increasing device;
- and

- an oxidizer storage device connected to said oxidizer supply device and storing hydrogen peroxide to supply the hydrogen peroxide to said oxidizer supply device as the oxidizer, wherein

- when (i) said surface area increasing device is preheated by said preheating device in the oxidation atmosphere, and (ii) said liquid fuel supply device supplies the fuel to the inside of said combustion chamber, propulsion is generated.

**Claim 16 (New)** The propulsion device of claim 15, wherein said surface area increasing device is operable to perform as a catalyst to decompose the oxidizer and create the oxidation atmosphere when the oxidizer collides therewith.

**Claim 17 (New)** The propulsion device of claim 16, wherein said preheating device is operable to generate heat by utilizing decomposition heat of the oxidizer.

**Claim 18 (New)** The propulsion device of claim 15, further comprising a catalyst device disposed inside said combustion chamber and arranged between said oxidizer supply device and said surface area increasing device, wherein when the oxidizer is

supplied by said oxidizer supply device (i) the oxidizer collides with said catalyst device, (ii) the oxidizer decomposes to create the oxidation atmosphere, and (iii) oxygen flows through said surface area increasing device.

**Claim 19 (New)** The propulsion device of claim 18, wherein said preheating device is operable to generate heat by utilizing decomposition heat of the oxidizer.

**Claim 20 (New)** The propulsion device of claim 15, wherein said preheating device is coupled to said surface area increasing device so as to supply said surface area increasing device with heat.

**Claim 21 (New)** The propulsion device of claim 15, wherein said preheating device is operable to generate heat by utilizing decomposition heat of the oxidizer.

**Claim 22 (New)** The propulsion device of claim 15, wherein said surface area increasing device is formed in any one shape selected from the group consisting of a net shape, a laminated net shape in which a plurality of nets are laminated, and a honeycomb shape.

**Claim 23 (New)** The propulsion device of claim 15, wherein said surface area increasing device is comprised of any one or more selected from the group consisting of silver, platinum, palladium, ruthenium, and iridium.

**Claim 24 (New)** The propulsion device of claim 15, said surface area increasing device comprising:

a ceramic support; and

a catalyst coupled to said ceramic support, said catalyst comprised of any one or more selected from the group consisting of silver, platinum, palladium, ruthenium, and iridium.

**Claim 25 (New)** A flying object comprising the propulsion device of claim 15.

**Claim 26 (New)** The flying object of claim 25, wherein said flying object is an object selected from the group consisting of an artificial satellite, an on-trajectory working station, a lunar probe, a planet probe, a guided aerospace craft, and a launch vehicle.

**Claim 27 (New)** A method of igniting a propulsion device for use with an oxidizer and liquid fuel for propulsion, said method of igniting comprising:

- preheating a surface area increasing device disposed in a combustion chamber;
- supplying the liquid fuel into the combustion chamber such that the liquid fuel collides with the surface area increasing device; and
- supplying hydrogen peroxide, as the oxidizer, into the combustion chamber (i) so as to create an oxidation atmosphere inside the combustion chamber, and (ii) so that the oxidizer collides with the preheated surface area increasing device, wherein propulsion is generated when the oxidizer collides with the preheated surface area increasing device and the liquid fuel.

**Claim 28 (New)** The method of igniting the propulsion device of claim 27, further comprising:

- providing the surface area increasing device with catalyst; and
- generating the oxidation atmosphere when the oxidizer collides with the catalyst.

**Claim 29 (New)** The method of igniting the propulsion device of claim 28, said preheating of the surface area increasing device comprising coupling a preheating device to the surface area increasing device so as to supply the surface area increasing device with heat.

**Claim 30 (New)** The method of igniting the propulsion device of claim 27, further comprising:

- providing a catalyst in the combustion chamber; and

generating oxygen when the oxidizer collides with the catalyst, causing the oxygen to flow through the surface area increasing device.

**Claim 31 (New)**      The method of igniting the propulsion device of claim 30, said preheating of the surface area increasing device comprising coupling a preheating device to the surface area increasing device so as to supply the surface area increasing device with heat.